

HYDROGEN GAS SENSOR, FUEL CELL SYSTEM AND CONCENTRATION MEASURING  
METHOD FOR HYDROGEN GAS

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Abstract  
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**PROBLEM TO BE SOLVED:** To provide a hydrogen gas sensor which can detect the concentration of hydrogen gas in a gas to be measured, to provide a fuel cell system and to provide a measuring method for hydrogen gas.

**SOLUTION:** A voltage which is applied across both electrodes 14b, 14c of an oxygen pump cell 14 is adjusted in such a way that an electromotive force across both electrodes 12b, 12c of an oxygen-concentration detecting cell 12 becomes a prescribed value (e.g. 450 mV). Then, a pump current  $i_p$  which flows in the oxygen pump cell 14 is measured. That is to say, the voltage which is applied to the oxygen pump cell 14 is controlled in such a way that the concentration of hydrogen gas in a fuel gas inside a gap part 16 becomes substantially zero and that, consequently,  $\lambda$  (air-fuel ratio of oxygen to hydrogen) = 1. The pump current  $i_p$  at this time is measured. The concentration of the hydrogen gas is measured on the basis of the pump current  $i_p$ .

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